Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A method of assessing the efficacy of an obesity treatment in a subject, the method comprising:

a) providing from the subject a test cell population comprising cells capable of expressing a nucleic acid sequence that encodes a polypeptide that comprises at least 80% homology with SEQ ID NO:29 and has the activity of a prohormone convertase ~~one or more nucleic acid sequences selected from the group consisting of OB1-6~~;

b) detecting expression of ~~one or more of~~ the nucleic acid sequence~~sequences~~ in said test cell population;

c) comparing the expression of the nucleic acid sequence~~sequences~~ in the test cell population to the expression of the nucleic acid sequence~~sequences~~ in a reference cell population comprising at least one cell whose obesity stage is known; and

d) identifying a difference in expression levels of the nucleic acid sequence~~OB1-6 sequences~~, if present, in the test cell population and the reference cell population, thereby assessing the efficacy of an obesity treatment in the subject.

2. (original) The method of claim 1, wherein the subject is a mammal.

3. (original) The method of claim 2, wherein the subject is human.

4-6. (cancelled)

7. (currently amended) The method of claim 1, wherein the expression of the nucleic acid sequence~~sequences~~ in the test cell population is increased as compared to the reference cell

population, wherein the reference cell is from a non-obese subject and an increase in expression is indicative of a decrease in efficacy.

8. (original) The method of claim 1, wherein the test cell population is provided in vitro.

9. (previously amended) The method of claim 1, wherein the test cell population is provided ex vivo from a mammalian subject.

10. (previously amended) The method of claim 1, wherein the test cell is provided in vivo in a mammalian subject.

11. (currently amended) A method of identifying a test therapeutic agent for treating obesity in a subject, the method comprising:

a) providing from the subject a test cell population comprising cells capable of expressing a nucleic acid sequence that encodes a polypeptide that comprises at least 80% homology with the amino acid sequence of SEQ ID NO:29 and has prohormone convertase activity~~or more nucleic acid sequences selected from the group consisting of OB1-6~~;

b) contacting said test cell population with the test therapeutic agent;

c) detecting the expression of ~~one or more of~~ the nucleic acid sequence~~sequences~~ in said test cell population;

d) comparing the expression of the nucleic acid sequence~~sequences~~ in the test cell population to the expression of the nucleic acid sequence~~sequences~~ in a reference cell population comprising at least one cell whose obesity stage is known; and

e) identifying a difference in expression levels of the nucleic acid sequence~~OB1-6 sequences~~, if present, in the test cell population and the reference cell population, thereby identifying a test therapeutic agent for treating obesity in a subject.

12. (previously amended) The method of claim 11 wherein the subject is a mammal.

13. (previously amended) The method of claim 12 wherein the subject is human.

14. (previously amended) The method of claim 11 wherein the test therapeutic agent is a known anti-obesity agent.

15. (previously amended) The method of claim 14 wherein the test therapeutic agent is selected from the group consisting of: dexfenfluramine, sibutramine, beta3-adrenergic agonists, and olistat.

16. (previously amended) The method of claim 11 wherein the test therapeutic agent is an unknown anti-obesity agent.

17-51. (cancelled)

52. (new) The method of claim 1, wherein the nucleic acid sequence hybridizes to SEQ ID NO:28 under stringent conditions.

53. (new) The method of claim 11, wherein the nucleic acid sequence hybridizes to SEQ ID NO:28 under stringent conditions.

54. (new) The method of claim 1, wherein the nucleic acid sequence encodes a naturally occurring polypeptide having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:29 and has prohormone convertase activity.

55. (new) The method of claim 11, wherein the nucleic acid sequence encodes a naturally occurring polypeptide having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:29 and has prohormone convertase activity.

56. (new) The method of claim 11, wherein the expression of the nucleic acid sequence in the test cell population is decreased in the presence of the agent as compared to the test cell

population in the absence of the agent, and a decrease in expression of the polynucleotide is indicative that the agent is a therapeutic agent.